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Artigo Original

Abordagens específicas da Terapia Ocupacional em reabilitação após Acidente Vascular Encefálico*

Specifc approaches of Occupational Therapy in the rehabilitation after Stroke

Actuación especifica de la Terapia Ocupacional em la reabilitación después Accidente Vascular Encefalico

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Resumen

Ainda há carência por mais estudos qualificados que possibilitem o debate sobre limitações, benefícios e possíveis melhorias na conduta de Terapia Ocupacional na reabilitação. Objetivou-se evidenciar a eficácia de abordagens específicas da Terapia Ocupacional baseadas no treino de Atividades Vida Diária, complementadas pela Cinesioatividade. Estudo quantitativo, caso único, paciente do sexo femino hemiparética à esquerda por isquemia encefálica. Os Procedimentos foram aprovados pelo comitê de ética e pesquisa com seres humanos através do parecer nº 1.337.714, comitê de ética em pesuisa do Instituto de Ciências da Saúde da Universidade Federal do Pará, e ocorreram ao longo de 20 sessões, duas vezes por semana, duração de 40 a 60 minutos por sessão. Avaliações em três tempos: admissão (1ª sessão), reavaliação (10ª sessão) e alta (20ª sessão). Testes físicos apontaram a resposta ao tratamento: percepção tátil (estesiômetro), grau de força muscular e amplitude articular de movimento. A Medida de Independência Funcional promoveu inferências sobre a recuperação de habilidades funcionais. Os dados gerados foram plotados no Programa Graph Pad, Prism – 6.0, análise de variância, pós-teste de Tukey, índice de significância: p< 0,05. Gráficos em coluna (média ± desvio padrão). Os testes físicos conseguiram evidenciar ganhos importantes aos componentes de desempenho ocupacional como a percepção tátil, a força muscular e a ADM. Isso também representou recuperação de habilidades funcionais prejudicadas pelo AVE, validada pela medida de independência funcional. Conclui-se que a relevância na associação de diferentes abordagens e prática específica da Terapia Ocupacional promovem importantes ganhos físicos e funcionais no decorrer da reabilitação.

Palavras-Chave: Acidente Vascular Encefálico; Atividades da Vida Diária; Cinesioatividade; Reabilitação; Terapia Ocupacional.

Abstract

There is still a lack of qualified studies that allow the debate on limitations, benefits and possible improvements in the conduct of Occupational Therapy in rehabilitation. The objective of this study was to demonstrate the efficacy of specific approaches to Occupational Therapy based on activities of daily living, supplemented by kinesioactivity. Quantitative study, single case, female patient presenting left hemiparesis due to brain ischemia. Procedures approved by research ethics committee ICS-UFPA number 1.337.714, occurred over 20 sessions, twice a week, duration of 40 to 60 minutes per session. Three-time assessments: admission (1st session), re-evaluation (10th session) and discharge (20th session). Physical tests indicated the response to the treatment: tactile perception, degree of muscle strength and range of motion. The Functional Independence Measure promoted inferences about the recovery of functional abilities. The data generated were plotted in the Graph Pad Program, Prism - 6.0, Analysis of Variance, Tukey post - test, significance index: p <0.05. Column graphs. Physical tests were able to show important gains to occupational performance components such as tactile perception, muscle strength and range of motion. This also represented recovery of functional abilities impaired by the stroke, validated by Functional Independence Measure. The relevance of the association of different approaches and specific practice of Occupational Therapy promotes important physical and functional gains in the course of rehabilitation.

Keywords: Activities of daily living; Kinesioactivity; Occupational Therapy; Rehabilitation; Stroke.

Resumo

Todavía hay carencia por más estudios cualificados que posibiliten el debate sobre limitaciones, beneficios y posibles mejoras en la conducta de la Terapia Ocupacional en la rehabilitación. Se objetivó evidenciar la eficacia de abordajes específicos de la Terapia Ocupacional basadas en el entrenamiento de Actividades de la Vida Diaria, complementadas por la Cinesioactividad. Estudio cuantitativo, caso único, paciente del sexo femenino con hemiparesia izquierda por isquémia encefálica. Los procedimientos fueron aprobados por la comité de ética en investigación ICS-UFPA, 1.337.714, ocurridos en 20 sesiones, dos veces por semana, duración de 40 a 60 minutos por sesión. Evaluaciones en tres tiempos: admisión (1ª sesión), reevaluación (10ª sesión) y alta (20ª sesión). Las pruebas físicas apuntaron la respuesta al tratamiento: percepción táctil, grado de fuerza muscular y amplitud articular de movimiento. La Medida de Independencia Funcional promovió inferencias sobre la recuperación de habilidades funcionales. Los datos generados fueron trazados en el programa Graph Pad, Prism - 6.0, Análisis de Varianza, prueba de Tukey, índice de significancia: p <0,05. Gráficos en columna. Las pruebas físicas pudieron evidenciar ganancias importantes a los componentes de desempeño ocupacional como la percepción táctil, la fuerza muscular y la amplitud articular de movimiento. Esto también representó recuperación de habilidades funcionales perjudicadas por la isquémia encefálica, validada por la La Medida de Independencia Funcional. Se concluye la relevancia en la asociación de diferentes enfoques y práctica específica de la Terapia Ocupacional para la promoción de importantes ganancias físicas y funcionales en el curso de la rehabilitación.

Palabras-Clave: Accidente Cerebrovascular; Actividades de la Vida Diária; Cinesioactividad; Reabilitación; Terapia Ocupacional

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PHPEUR VXSHULRU TXDQWR LQIHULRU RX SDUD DPERV (VVDV PpGLDV
HYROXWLYDPHQWH HQWUH VL RX D XP SDGUmR GH IXQFLRQDOLGDGH
FRQYHQFLRQDGD QR YDORU GH UHIHUrQFLD XP ILJXUD

4XDGUR ± 3RQWRV H PRYLPHQWRV DUWLFXODUHV WHVWDGRV SDUD UH

0HPEUR	$UWLFXODomR	0RYLPHQWR	$YDOLDomR
6XSHULRU	2PEUR	)OH[mR ([WHQVmR	%LODWHUDO
		$EGXomR	
	&RWRYHOR	)OH[mR	
		3URQDomR 6XSLQDomR	
	3XQKR	)OH[mR ([WHQVmR	
		'HVYLRV UDGLDO H XOQDU	
0HPEUR	$UWLFXODomR	0RYLPHQWR	$YDOLDomR
,QIHULRU	4XDGULO	)OH[mR ([WHQVmR	%LODWHUDO
	-RHOKR	)OH[mR	
	7RUQR]HOR	)OH[mR ([WHQVmR SODQWDU	

$ 0HGLGD GH ,QGHSHQGrQFLD)XQFLRQDO D GLVSHUVmR LQGLYLG
SRQWXDomR GRV FRPSRQHQWHV GH FDGD GRPtQLR $ HVFDOD GH SRQ
VHWH IRL UHJLVWUDGD VHSDUDGDPHQWH VHP D VRPDWyULD HQWUH
GRPtQLRV LVVR IDYRUHFHX GXDV YLDV GH DQiOLVH GRV UHVXOWDGR
DYDOLDomR XPD -VHQWHQGR DQiOLVH WRGRV RV FRPSRQHQWHV GRV GRPt
SRVVLELOLWD D LQWHUSUHWDomR GD UHVSRVWD IXQFLRQDO JHUDO D
VH DSHQDV RV FRPSRQHQWHV GRV GRPtQLRV FRP YDORUHV GD DGPLV
LVVR SRVVLELOLWD D LQWHUSUHWDomR HYROXWLYD DR WUDWDPHQWR
IRUPDV GH DQiOLVH IRUDP LQWURGX]LGRV SDUkPHWURV LGHDLV GD 0
GRV GRPtQLRV LGHDOL]DGRV DOFDQoDQGR VHWH QR WRWDO FRPR H
)LJXUD

'HVFULomR *HUDO GDV ,QWHUYHQo}HV

2V SURFHGLPHQWRV IRUDP UHJLVWUDGRV HP SURQWXiULR H H[HF
PHVPD VHVVmR RX HP VHVV}HV VXEVHTXHQWHV FLQHVLRDWLYLGDGH H

&LQHVLRDWLYLGDGH SUHYLDPHQWH D XP WUHLQR GH VHS $9' R XPD VH
IRFR GHVWD SUiWLFD YLVOXPEUDYD XP SUHSDUDWyULR IXQFLRQDO FR
$9' UHJLVWUDGD FRP DOJXP JUDX GH SUHMXt]R QDV DYDOLDo}HV $ H
SDUWLUDP GDV TXHL[DV GHPDQGDV RX LQWHUHVVHV DSRQWDGDV FR
$V DWLYLGDGHV GHVWDFDGDV IRUDP VHJPHQWDGDV QRV SULQFLSDLV
XVDGRV SDUD HGLomR GDV WDUHIDV RUJDQL]DGDV FRPR &LQHVLRDWL

$ SURSRVWD GH LQWHUYHQo}HV EDVHDGD QD &LQHVLRDWLYLGDG

GLYHUVRV UHFXUVRV OXGRDFEPRIEDQWH SLQRV GH ERODV FKH EDPEROD DU

WDODV H[WHQVRUDV GH GHGRV H SUHHQVRU (VWHV UHFXUVRV SRVVL

FRPSRQHQWHV GH GHVHPSHQKR RFXSDFLRQDO H IRUDP DSOLFDGRV FR

ID]HU H SHOD IDFLOLWDomR GR DWR PRWRU SHOD FRQGXomR SURSULF

7UHLQRV GH $9' $WLYLGDGHV VHOHFLRQDGDV IRUDP EDVHDGDV HP DWLY

GHPDQGD HVWDEHOHFLGDV GXUDQWH DV VHVV}HV H IRUDP UHSHWLGD

DSURIXQGDGDV FRPR D VXEVWLWXLomR GH FROKHU SRU JDUIR H IDFD

DOLPHQWDomR GH DFRUGR FRP D QHFHVVLGDGH RX HYROXomR GD SD

GHVHPSHQKDGDV GXUDQWH HVWH SURFHVVR HVWi R WUHLQR GH DWLY

H[HPSOR EHEHU iJXD GH IRUPD LQGHSHQGHQWH GHVGH FRORFDU iJX

DWp OHYi-OR j ERFD WUHLQR GH DOLPHQWDomR FRP R PHPEUR DIHWDGR

DGDSWDomR GH WDOKHUHV SHQWHDU R FDEHOR YDUUHU H FXLGDGR

DV PmRV

$QiOLVH HVWDWtVWLFD

2V GDGRV JHUDGRV IRUDP SORWDGRV QR 3URJUDPD *UDSK3DG 3

HVWDWtVWLFD GHVFULWLYD EDVHDGD QD DQiOLVH GH YDULkQFLD $12

GH VLJQLILFkQFLD HVWLPDGD SDUD S 2V JUiILFRV IRUDP HGLWDG

DSUHVHQWDomR GD PpGLD H GHVYLR SDGUmR PpGLD “ '3

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2V DFKDGRV VXJHUHP TXH RV LQVWUXPHQWRV GH DYDOLDomR XV

UHVSRVWD HYROXWLYD GD SDFLHQWH H SDUWLFLSDomR WHUDSrXWLFD

LPSRUWDQWHV DRV FRPSRQHQWHV GH GHVHPSHQKR RFXSDFLRQDO WH

ILQDO GDV LQWHUYHQo}HV UHSUHVHQWRX UHFXSHUDomR GH KDELOLG

$9(

$ SHUFHSomR WiWLO HYROXLX DR ORQJR GR WUDWDPHQWR D SDWD

$ HVWHVLRPHWULD GHPRQVWURX TXH D SHUFHSomR WiWLO GD PmR DIHWDGD VH PDQWHYH QRV SRQWRV SLVLIRUPH H SDOPDU SURILVVLRQDLV

)LJXUD % H & &RQWXGR QD DGPLVVmR DPEDV DV H[WUHPLGDGHV

LJXDOPHQWH SUHMXGLFDGDV)LJXUD % H & $SHVDU GR GHVHQKR

SHUFHSomR WiWLO GR FRPSRQHQWH WHQDU QR DOYLR FRP R SODQR WH

RFXSDFLRQDO H[HFXWDGR)LJXUD % ,VVR ILFD HYLGHQWH QD DYD

D GLIHUHQoD HVWDWtVWLFD HQWUH D VHQVLELOLGDGH WiWLO GD PmR FRQWUD

LSVLOHVLRQDO GHL[D GH H[LVWLU FDUDFWHUL]DQGR LJXDOGDGH H H

VHQVDomR)LJXUD %

(P XPD DQiOLVH PDLV JHUDO FRP RV GDGRV DJOXWLQDGRV GD Pm
FRQWUDOHVLRQDO TXH QR SUHVHQWH HVWXGR HVWiPXOR SHUPLWLX VHU PHQVXUDGR HQWUH D • VHV
DYDOLDomR GH DGPLVVmR " S H H" QD • VHVVmR GH UHDYDOLDom
" H " S FRPSDUDGRV FRP ODGR LSVLODWHUDO &RQWU
GLIHUHQoD HVWDWiVWLFD QmR PDLV REVHUYDGD QR PRPHQWR GD DOWD " H
S! ,VVR VXJHUH UHFXSHUDomR IXQFLRQDO)LJXUD $ IDYRUHFLGR SHOR
UHDELOLWDomR H[HFXWDGR
'LVVR FRQVHJXH LQIHULU TXDOLWDWLYDPHQWH GDV FRUHV ILJXUD
GR PRQRILODPHQWR YLROHWD FDUDFWHUL]DGD SHOD GLILFXOGDGH G
YDUUHGXUD WpUPLFD SDUD R PRQRILODPHQWR D]XO SDVVDQGR D OLPLWDom
ILQD GD VHQVLELOLGDGH WiFWLO FRP PRQRILODPHQWR YHUGH FRP VLJQLILFkQFLD HQWUH D
• H D VHVVmR " H " S H HQWUH D • H D • VHVVmR
" H " S)LJXUD $ (VVHV UHVXOWDGRV HP FRQMXQ
FRQWLQXLGDGH QD UHFXSHUDomR GD VHQVLELOLGDGH GR SpV GXUDQWH D DYDOLDom

)LJXUD± (VWHVLRPHWULD GDV PmRV SHUFHSomR GH VHQVLELOLGDGH WiFWLO 5HSUHVHQWD
HYROXWLYD JHUDO GR OLPLDU SHUFHSWLYR GDV PmRV H GRV SpV FRP PRQRILODPHQWR SHUFHSWLYR W
DSHQDV GDV PmRV FRPSDQKDPHQWR SHUFHSWLYR WiWLO DSHQDV GRV SpV /LQK
KRUL]RQWDLV OLPLDU SHUFHSWLYR SDUD FDGD PRQRILODPHQWR

6~WLO UHFXSHUDomR QR JUDX GH IRUoD PXVFXODU FRP SUHMXt]R
QD IXQomR PRWRUD

'D (VFDOD GH 3HVTXLVD 0pGLFD GH)RUoD 0XVFXODU TXH FRQVHJXH
VHPHOKDQWH GH iSWLFR)LJXUD R JUDX GH IRUoD PXVFXODU QR PHP
PDLV SUHMXGLFDGR FRPSDUDGR DR PHPEUR LQIHULRU FRQWUDODWHUDO
VHJPHQWRV FRUSRUDLV GHPRQVWUDP HYROXomR DR ORQJR GRV WUrV
% H & &RPSDUDGRV DR JUDX GH IRUoD PXVFXODU LSVLODWHUDO
PHOKRUD QHVWH WHVWH ItVLFR DLQGD QDV GH] SULPHLUDV VHVV}HV
VXSHULRUHV HYROXHP FRP HVWDELOLGDGH HP TXDOTXHU GRV WHPSRV
HYLGHQWH)LJXUD %

'D DQiOLVH HP FRQMXQWR GRV GDGRV GR JUDX GH IRUoD PXVFXO
VXSHULRUHV H LQIHULRUHV FRPSDUDQGR R ODGR LSVLODWHUDO FR
WHPSRV GH DYDOLDomR VH FRQVLGHUD TXH R WUDWDPHQWR ILVLRWHUDSrXWLFR
SURPRYHX JDQKRV QR SDWDPDU GH PRYLPHQWRV GH QRUPDOLGDGH S)
$ &RQWXGR Ki JDQKRV IXQFLRQDLV R JUDX GH IRUoD PXVFXODU PH
DOWD " H " S

$SHVDU GH H[LVWLU DXVrQFLD GH UHVXOWDGR HVWDWtVWLFR
D LQWHUSUHWDomR TXDOLWDWLYD TXH VXJHUH TXH D IRUoD PXVFXOD
OLPLWDGRV PRYLPHQWRV DWLYRV PXLWR PXVFXODUHV PDLV DPSODV FRP DGL
UHVLVWrQFLDV GHPRQVWUDQGR JDQKR IXQFLRQDO QHVWH WHVWH It

)LJXUD± (VFDOD GH 3HVTXLVD 0pGLFD *UDX GH)RUoD 0XVFXODU 0(& $ &RPSDUDomR GR JUDX GH IRUoD PXVFXODU GRV PHPEURV VXSHULRUHV GR ODGR LSVLODWHUDO FRP R FRQWUDODWHUDO % &RPSDUDomR GR JUDX GH IRUoD PXVFXODU GRV PHPEURV LQIHULRUHV FRP R FRQWUDODWHUDO S

*DQKRV UHODWLYRV QD DPSOLWXGH DUWLFXODU GH PRYLPHQWR

2V GDGRV UHODWLYL]DGRV GD JRQLRPHWULD FRUURERUDP FRP R
WWLO H GH IRUoD PXVFXODU GHPRQVWUDQGR TXH D $'0 GR PHPEUR LQ
SUHMXGLFDGD TXH D GR PHPEUR VXSHULRU)LJXUD % H & DPERV
GRLV VHJPHQWRV FRQVHJXHP DSUHVHQWDU PHOKRUD DR ORQJR GRV
)LJXUD % H &

'H PRGR JHUDO DQDOLVDQGR R SDGUmR GH $'0 QD DOWD RV UH
PHPEURV VXSHULRUHV H LQIHULRUHV MXQWRV HYLGHQFLDP UHFXSHU
" H " S!)LJXUD $ 3DUWLQGR GD FRPSDUDomR DSHQDV GR
FRQWUDOHVLRQDO DR ORQJR GD LQWHUYHQomR VH REVHUYRX TXH VHTXrQFLD
VLJQLILFkQFLD HVWDWtVWLFD HQWUH D DGPLVVmR H D UHDYDOLDomR " H
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MXQWRV DSRQWDP UHFXSHUDomR GD $'0 DR ORQJR GR DFRPSDQKDPHQWR
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GD JRQLRPHWULD GRV PHPEURV VXSHULRUHV % 5HDYDOLDomR JRQLRPpWULFD GRV PH
VXSHULRUHV & 5HDYDOLDomR JRQLRPpWULFD GRV PHPEURV LQIHULRUHV 6LJQLILFk

$ SUiWLFD WHUDSrXWLFD RFXSDFLRQDO SURPRYHX D UHFXSHUDomR

3DUWLQGR DSHQDV GRV FRPSRQHQWHV GRV GRPtQLRV GD 0,) TXH
PHQRUHV TXH VHWH)LJXUD $ QD GLPHQVmR DXWRFXLGDGR SRGHPRV
PRGLILFDGD FRP DWp GH DVVLVWrQFLD QD H[HFXomR GH DWLYLGD
" (VVH TXDGUR TXDOLWDWLYR GH UHDEELOWDomR Qm)LJXUD DWp
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3DUWLQGR SDUD R HVWXGR GDV SHQDV GRV FRPSRQHQWHV GRV GRPtQLRV GD 0,) TXH S

PHQRUHV TXH VHWH)LJXUD $ QD VHTXrQFLD GH LPSDFWR SDUD D GHSHQGrQFLD

PRGLILFDGD FRP DWp GH DVVLVWrQFLD QD H[HFXomR GH DWLYLGDG

“ (VVH TXDGUR TXDOLWDWLYR GH UHVXOWDGRV QmR GD)LJXUD DWp

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3RU RXWUR ODGR R WHVWH SDUD R SRUWR GH DQiOLVH TXH PDQWrP WRG

JHUDGRV GRV FRPSRQHQWHV QRV GRPtQLRV GD 0,))LJXUD % TXD

TXH HQWUH D DGPLVVmR H DOWD GR VHUYLoR RFRUUH D SDVVDJHP G

“ SDUD R QtYHO GH LQGHSHQGrQFLD FRPSOHWD)LJXUD %

$SOLFDQGR D DQiOLVH HVWDWtVWLFD jV GHVFULo}HV TXDOLWDWLY

WHPSRV GH DYDOLDomR RFRUUHX PHOKRUD PDWHPiWLFD DSHQDV HQW

SUHMXGLFDGDV VHP VLJQLILFkQFLD S)LJXUD $,VVR FRQWXGR

LPSHGH D UHFXSHUDomR GH IXQo}HV JHUDLV TXH DQWHV HVWDYDP OL

UHVXOWDGRV GHPRQVWUDP PHOKRUD QR PRPHQWR GD DOWD FRP JDQ

GH QRUPDOLGDGH “ H “ S!)LJXUD %

)LJXUD ± 0HGLGD GH ,QGHSHQGrQFLD)XQFLRQDO 0,) GDGRV FRP SRQWXDomR L
D VHWH QRV GRPtQLRV GD 0,) % 7RGRV RV GDGRV DQDOLVDGRV QRV GRPtQLRV GD 0,)
WtVWLFD S

(VVHV UHVXOWDGRV IXQFLRQDLV VmR FRUURERUDGRV SHORV DFK

DFRPSDQKDGRV H VXJHUHP TXH LQWHUYHQo}HV EDVHDGDV HP SUiWLF

2FXSDFLRQDO SURPRYHP D UHDELOLWDomR GH VHTXHODV DSyV XP $9

JHUDLV DYDOLDGDV

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(YLGrQFLDV QD OLWHUDWXUD GHPRQVWUDP TXH D 7HUDSLD 2FXSDFLRQDO
SyV $9(DMXGDP QD UHFXSHUDomR GH KDELOLGDGHV IXQFLRQDLV GXUD
UHVXOWDGRV FRUURERUDP FRP D OLWHUDWXUD H HYLGHQFLDP UHFXS
SUiWLFD WHUDSrXWLFD RFXSDFLRQDO GRV TXDLV VH GHVWDFDP DTXL R JDQ
DIHULGD SHOD 0,) H SHORV WHVWHV ItVLFRV TXH DIHULUDP IRUoD
PXVFXODU H D $'0 TXH HP GDGD FLUFXQVWkQFLD VH LJXDODP DR HV
QRUPDOLGDGH 2V DFKDGRV HVWDWtVWLFRV QHVVH HVWXGR VmR DSRLDGRV
TXDOLWDWLYD GRV WHVWHV XVDGRV

(VVHV DFKDGRV VH VXVWHQWDP HQWUH VL SDUD HYLGHQFLDU D
HP IXQomR GDV LQWHUYHQo}HV SODQHMDGDV H H[HFXWDGDV HP VXEVLG
SHFtILFD GD 7HUDSLD 2FXSDFLRQDO SUHFHGHQWH QD OLWHUDWXUD

2V UHVXOWDGRV DTXL GHVWDFDGRV GHPRVWUDP FHUWD UHOHYk
DERUGDJHQV GD 7HUDSLD 2FXSDFLRQDO QR GHFRUUHU GD UHDELOLW
&LQHVLRWHUDSLD H R WUHLQR GH $9' XWLOL]DGRV QR SUHVHQWH
SRU SURYHU JDQKRV DR GHVHPSHQKR RFXSDFLRQDO UHWRPDGD GH S
IRUPD PDLV LQGHSHQGHQWH SRVVtYHO FRPR FRPSUHHQGLGR GD OLW
&RQFRPLWDQWHPHQWH D &LQHVLRWHUDSLD FRODERURX QD SURPR
GHVHQYROYHQGR KDELOLGDGHV IXQFLRQDLV EiVLFDV

'LDV H -~QLRU DSRQWDP HVWD LGHLD DR PHQFLRQDU D UHGXFDomR
WHUDSHXWDV RFXSDFLRQDLV FRP XVR GD &LQHVLRWHUDSLD SDUD
GH FRPSRQHQWHV GH GHVHPSHQKR RFXSDFLRQDO FRPSURPHWLGRV 1
HVWXGR PDV D OLWHUDWXUD DSUHVHQWD UHVXOWDGRV TXDQWR DR
PHOKRUDP RXWURV DVSHFWRV IXQFLRQDLV GR FRWLGLDQR

2 SULQFLSDO DFKDGR GD SHVTXLVD

2V WHVWHV ItVLFRV XVDGRV FRPR SDUkPHWURV GH DYDOLDomR G
SHFtILFD GD 7HUDSLD 2FXSDFLRQDO GH SDFLHQWHV SyV $9(SURYH UHFXSHUDom
GH IXQo}HV SUHMXGLFDGDV 1HVVH FRQWH[WR QRVVRV DFKDGRV UHS
VHPHOKDQWHV TXH GHVFUHYHP R WUHLQR GH $9' FRPR DERUGDJHP S
HVWXGRV TXH HQYROYHP R SURILVVLRQDO WHUDSHXWD RFXSDFLRQDO 1
OLWHUDWXUD GH PDQHLUD WDQWR FOiVVLFD FRPR DWXDO HVWH SUR
DWXDomR SURILVVLRQDO QR SyV $9(

6REUH D &LQHVLRWHUDSLD QmR IRL HQFRQWUDGR TXDOTXHU GHVFULomR HP
TXDOLILFDGD TXH VXVWHQWH RV SURFHGLPHQWRV DTXL DSOLFDGRV F
IRUDP HQFRQWUDGRV GHVFULWLYRV LQGLUHWRV SHOR XVR GH SUHFH
RFXSDFLRQDLV 1R HVWXGR GH %LHQJUDO HW DO IRL XPD FRDGMXYDQWH
QD GHILQLomR TXDOLWDWLYD GH PHOKRUD GD IXQomR PRWRUD DSyV %L
HW DO LQWHJUDOL]RX TXDQWLWDWLYDPHQWH R XVR GD IXQomR PRWRU
SDUD HVFUHYHU HP SDFLHQWHV SyV $9(:RRGEXU\ HW DO

TXDOLWDWLYDPHQWH TXH R SODQHMDPHQWR VLVWHPiWLFR EDVHDGR
IDYRUHFLD R SURJUHVVR GD UHDELOLWDomR 1RV HVWXGRV FLWDGRV
DQiOLVH GR PRYLPHQWR IXQGDPHQWDGD QD &LQHVLRORJLD DSOLFDG
WHUDSHXWDV RFXSDFLRQDLV

'H PRGR XP SRXFR PDLV DYDQoDGR 3XQD &LQHVLRORJLD SHOR
PRYLPHQWRV DVVLVWLGR SRU URE{V SDUD DXPHQWDU D SUHFLVmR Q
'DV SHVTXLVDV VXSUDFLWDGDV VH DSUR[LPD GD IXQGDPHQW
XVR DTXL LGHDOL]DGR SDUD R SUHVFULWRU &LQHVLRDWLYLGDGH D U
SRWHQFLDO GR HVSHFLDOLVWD GD 7HUDSLD 2FXSDFLRQDO TXH EXVFD TXDOL
SUHMXGLFDGDV GH PRYLPHQWRV EiVLFRV HOHLWRV VREUH PDWHULDOL
SUHYLDPHQWH H SHUVRQDOL]DGDV jV GHPDQGDV LQGLYLGXDLV GR SD
GH GHVHPSHQKR H LQGHSHQGrQFLD SUHFHGHQGR DR WUHLQR GH XPD
GHILQLGD

2V SURFHGLPHQWRV GH DYDOLDomR DGRWDGRV QHVWD SHVTXLVD
GLVFULPLQDU D SDUWLFLSDomR GD &LQHVLRDWLYLGDGH RX GR 7UHLQ
SDFLHQWH &-HEVHQ DV DILUPDU TXH FDGD LQVWUXPHQWR PHGLX D
FRPSRQHQWH GH GHVHPSHQKR RFXSDFLRQDO VHOHFLRQDGR DR WUDW
HP HVWXGRV IXWXURV TXDQWLILFDU R SHVR TXH SURYDYHOPHQWH FD
RFXSDFLRQDO WHP QD UHFXSHUDomR IXQFLRQDO H GH LQGHSHQGrQFL

2 HVWHVL{PHWUR GHPRQVWUD D UHFXSHUDomR GD SHUFHSomR WiW

$ DYDOLDomR LQLFLDO SHOR HVWHVL{PHWUR PRVWURX TXH D 7HUDSLD 2FXSDFLRQDO
jV OLPLWDo}HV GD DWLYLGDGH VRPDWRVVHQVRULDO H VHQVLELOLGDGH W
3DUD HVVH ILP SDUWH GRV DWHQGLPHQWRV VH FRQFHQWUDUDP QD H
DXPHQWDU D SUHFLVmR GH VHQVLELOLGDGH SHUFHSomR

$ DSOLFDomR FOiVVLFD GR HVWHVL{PHWUR VH YROWD DR PRQLW
QHXURSDWLDV SHULIpULFDV FXMD FRPSOLFDo}HV DIHWDP D VHQVLELO
FRPSUHHQVmR TXH VH WUDWD D SULRUL GH XP LQVWUXPHQWR GH D
VHQVLELOLGDGH WiWLO SHULIpULFD &RQWXGR HVVH FRPSRQHQWH G
HQWH GR FXLGDGR PpGLFR FRP OLPLWDU GH UHVSRVWD VHQVLWLYD TXDQW
FHQWUDO WDQWR FHUHEUDO TXDQWR PHGXODU SRUWDQWR TXH D FXLGDGR GR SHVVRDO
GD LQWHJULGDGH WDQWR GD YLD SHULIpULFD TXDQWR GD FHQWUDO

%DVHDGR QHVVH SUHFHLWR PRGHUQDPHQWH HVWXGRV Mi YHP D
SDUD PHGLU GpILFLWV VHQVRULDLV FHQWUDLV FRPR QD 3DUD
&HUHEUDO H PHVPR 'RHQoD 9DVFXODU (QFHIiOLFD QRVVRV UHVXOWDGRV FRUURERUD
DQWHULRUHV H GHPRQVWUDP D HILFLrQFLD WDQWR QD TXDOLILFDomR G
TXDQWR QR DFRPSDQKDPHQWR GD UHVSRVWD HYROXWLYD GHVWD SHU
SURJUDPD GH UHDELOLWDomR DSOLFDGR SHOD 7HUDSLD 2FXSDFLRQD

*DQKR GH IRUoD PXVFXODU HP UHVSRVWD j UHDELOLWDomR

1RVVRV DFKDGRV WUDEDOKDUDP D SDUWLU GD DQiOLVH TXDQWLW
HQWDQWR DEDQGRQDU R SRGHU TXDOLWDWLYR GHVFULWLYR GHVWD
PXVFXODU UHFRQKHFLGR H DPSODPHQWH UH&RQWXGR GR DFHLWH HUDW
D DQiOLVH HVWDWtVWLFD D SDUWLU GRV YDORUHV QXPpULFRV GH SR
HVWDEHOHFLGR XPD SRVVLELOLGDGH PDLV DFXUDGD GH LQWHUSUHW
QRV HVWXGRV GH &DUUHLUD HW DO VXJHUH GH WHVWH D YDORUHV QX
TXDQWLGDGH GH UHSHWLo}HV TXH SRVVLELOLWH D LQIHUrQFLD HVWDWt

$ DPSOLWXGH DUWLFXODU GH PRYLPHQWR UHVSRQGH EHP DR WUDW

2 DFRPSDQKDPHQWR DYDOLDWLYR GD $'0 VHUYH GH SDUkPHWURV
JUDYLGDGH GH GpILFLWV FDXVDGDV SRU GHVRUGHQV PXVFXORHVTXH
GD PHVPD DR WUDWDPHQWR R UHJLVWUR GD $'0 IHLWR SHOR JRQ
LQVWUXPHQWR DQDOyJLFR RIHUWD YDORUHV DQJXODUHV QXPHULFDP
DUWLFXODU $JXL DF-UHGLWD D UHODWLYL]DomR GRV GDGRV JHUDGRV S
SRVVLELOLWRX DPSOD FRPSDUDomR HQWUH DV DUWLFXODo}HV GRV P
HOHLWRV QHVVH HVWXGR

1RVVRV DFKDGRV FRUURERUDP FRP RV HVWXGRV GH &KHQ H
JDQKR GH $'0 GH SDFLHQWHV VREUHYLYHQWHV GH $9(VXEPHWLGRV j
DERUGDJHQV HVSHFtILFDV GD 7HUDSLD 2FXSDFLRQDO

$V LQWHUYHQo}HV IDYRUHFHP D UHFXSHUDomR IXQFLRQDO

(P FRQMXQWR RV UHVXOWDGRV VXJHUHP TXH DV LQWHUYHQo}HV
SURPRYHUDP UHFXSHUDomR IXQFLRQDO GD SDFLHQWH FRPSURYDGR
DFKDGRV GHVFULWRV DQWHULRUPHQWH $OLPH QD OLWHUDWXUD DV FDWHJRULDV
GRPtQLRV GD 0,) -VXJHUH D UHDELOLWDomR EDVHDGD QR WUHLQR GH $
&LQHVLRDWLYLGDGH FRQVHJXLX SURYHU JUDQGHV SRQWXDo}HV QDV LPSR
IXQFLRQDO H j DXWRQRPLD SURPRYHQGR FRQGLo}HV SDUD D SDUWLFLSDo

3RU ILP DTXL RV LQVWUXPHQWRV GH WHVWH tVLFRV IRUDP XVD
GRV FRPSRQHQWHV GH GHVHPSHQKR RFXSDFLRQDO Mi D 0,) IRL XVDG
IXQFLRQDLV JHUDLV 6REUH HVWH ~OWLPR HP HVWXGRV DQWHULRUH
GRV GDGRV H LQIHUrQFLD GRV QRVVRV DFKDGR IRL VHPHOKDQWHPHQ
DQWHULRU $VVLP PDQWHYH HVWH HVWXGR DIHUH FRQVLGHUiYHO FRP
UHVXOWDGRV LQIHULGRV SHOD 0,) FRP DTXHOHV REWLGRV GRV WHVW

&21&/86-2

'R HVWXGR -FRQFOXL D &LQHVLRDWLYLGDGH H R WUHLQR GH $9' I
IDYRUHFHU D UHFXSHUDomR GR HVWDGR IXQFLRQDO GD SDFLHQWH D
WWLO GR JUDX GH IRUoD PXVFXODU H GD $'0 QR KHP-LFRUSR FRQWUD
HILFLrQFLD GR WUHLQR GH $9' QR SURFHVVR GH UHDELOLWDomR QHX

LQFDSDFLGDGHV H GHVHQYROYHQGR KDELOLGDGHV SUHMXGLFDGDV $
FLHQWtILFR GRV GDGRV JHUDGRV SRGHULD GDU XPD QRWDomR PDLV S
&LQHVLRDWLYLGDGH QHVVHV JDQKRV UHJLVWUDGRV &RQWXGR DSHV
GLUHWDPHQWH GHEDWLGD QD OLWHUDWXUD DTXL PDQLIHVWRX FHUW
EHQHItFLRV GR WUHLQR GH $9' 2 DXPHQWR QR Q~PHUR GH SDUWLFLS
PDLV FRQILDELOLGDGH DRV UHVXOWDGRV DTXL DSUHVHQWDGRV ,VVR
DFKDGRV DTXL GHVWDFDGRV H SURYRFD FHUWD LQTXLHWDomR SDUD
XP FHQiULR FRP Q~PHUR PDLRU GH SDUWLFLSDQWHV IXQGDPHQWDO
SHVTXLVD EXVFDQGR LGHQWLILFDU R SHVR UHODWLYR TXH FDGD DER
IXQFLRQDO UHGLPHQVLRQDQGR R GHVHQKR GHVWH HQVDLR FOt

5HIHUHQFLDV

6WLQHPDQ 0* 6WUHLP -($FWLYLW\ /LPLWDWLRQ 6WDJHV HPSLULFDO
IRU $FWLYLWLHV RI 'DLO\ /LYLQJ $'/ DQG ,QVWUXPHQWDO $FWLYLW
QL-WG\ZHOOLQJ 0HGLFDUH SRSXODWLRQ -30 5

%LVLR $ 3HGXOOj / %RQDQQR / WHUQDWL +DQGZULWLQJ 0RYHPHQW .L
LFV)URP DQ (FRORJLFDO WR D 0DJQHWLF 5HWURQULQW (QYLURQPHQ

*UDWWDQ (6 /DQJ &(%LUNHQPHLHU 5 +ROP 0 5XELQVWHLQ (9DQ
(5 ([DPLQLQJ WKH)HDVLELOLW\ 7ROHUDELOLW\ DQG 3UHOLPLQDU\ (I
7DV-N6SHFLILF 3UDFWLFH IRU 3HRSOH :LWK 8QLODWHUDO 1HJOHFW 1HJ
-

9DVFRQFHORV &LQHVLRDWLYLGDGH HVSDoR GH FLUFXODomR SDUD GLVIXQ
omR QHXURPRWRUD HP 5%3 6DOWRV

3LOD 2 'XUHW & /DERU 3DW ;H LPSURYHPHQW LQ XSSHU OLPE
WDVN NLQHPDWLFV DIWHU D WUDLQLQJ SURJUDP ZLWK URERWLF DVVLVW
VWURNH-1HXURHQJ 5HKDELO

:ROI 7- &KXK $)OR\G 7 0F,QQLV $:LOOLDPV (2FFXSDWLRQDO
LQWHUYHQWLRQV WR LPSURYH DUHDV RI RFFXSDWLRQ DQG VRFLDO SD
DQ HYLGHQFH-EDVHG UHYLHZ- 2FFXS 7KHU -

0HOR '0 GH %DUERVD $- 0LQL-([DPH GR (VWDGR 0HQWDO HP SHVTXLVD
FRP LGRVRV QR %UDVLO XPD UHYLVmR VLVWHPiWLFD -

/RXUHQoR 5$ 9HUDV 53 0LQL-([DPH GR (VWDGR 0HQWDO FDUDFWHUtVWLFDV
HP LGRVRV DPEXODWRULDLV 5HY 6DXGH 3XEOLFD -

$VVLV &6 GH %DWLVWD / GH & 0RGLILFDGR 1HFHVVLGDGH GH IXQFLRQ
HP SDFLHQWHV FRP FODXGLFDomR 5HY (VFRO (QIHUP 86 3 -

3DWHUQRVWUR 7-*UDLOHQJHU 0 3RVFK 0 6FKXKIULHG 2 9DFDULX * 0
%LWWQHU -&R)LHUR 5-H OLDELOLW\ DQG YDOLGLW\ RI WKH 0HGLFDO 5HVH
05& VFDOH DQG D PRGLILHG VFDOH IRU WHVWLQJ PXVFOH VWUHQJWK
UDGLDO SDOV\ 5HKDELO 0HG -

48$**,2 &03 62$5(6)$06 /,0$ 0$ 8VR GRV 0RQRILODPHQWRV GH 6HPPH
:HLQVWHLQ QRV ~OWLPRV FLQFR %DQFR %LEOLRJUiILFR 6$ 9,7$
-

$FH *hRWHP 6D-0GH QXDO GH *RQLRPHWURDG ÆHGLmRV $UWLFXODUHV 5LR GH -DQHLUR >DFHVVR HP IHY @ 'LVSRQtYHO HP KWWS DF XSORDGV 0$18$/ *21,20(75,$),1$/ SGI

0HKGL]DGHK 0 0HKUDEDQ $+ =DK7KHGL(DEHQDVUDE *RXVHIG 2FFX SDWLRQDO 7KHUDS\ RQ 3HUIRUPDQFH DQG 6DWLVIDFWLRQ RI 6WURNH 1HXUR2FFXSDWLRQDO %DVHZ &OLQ 1HXURVFL ±

&KLOO /6 /DQQLQ1$ 0\NRQQH <. HW DO &KDQJH LQ WKH DVVHVVPHQW DQG WUHDWPHQW RI VRPDWRVHQVRU\ ORVV LQ VWURNH VXUYLYRUV NQRZOHGJH WUDQVODWLRQ +HDOWK 6HUY 5HV

3pUH]0iUPRO *DUFtD5tRV 0%DUUHUR+HUQDQGH])-)XQFWLRQDO UHKDELOLWDWLRQ RI XSSHU OLPE DSUD[LD LQ SRVWVWURNH SDWLHQWV VWXG\ L]HG FRQWUROOHG WULDO

%LJRQL 0 %DOGLPR 9 'HHW DO QHPDWLFV DGG PHDQLQJIXO LQIRUP WR FOLQLFDO DVVHVVPHQWRI XSSHU OLPE UHKDELOLWDWLRQ" $ FDV 3K\V 7KHU 6FL ±

:RRGEXU\ 0 $QGHUVRQ .)LQHWWL &RQJHQHWLDO FXOW\ WR SDWLHQW DELOLW\ GXULQJ WDVN SUDFWLFH LPSURYHV XSSHU H[WUHPLW\ PRWRU SURRI RI FRQFHSW $UFK 3K\V 0HG 5HKDELO ±

&UX] '0& 7R\RGD&DUDSLD 2FFXSDFLRQDO QR WUDWDPHQWR &RQGLFLRQDO $9& -

0DQLWD 6DX]XNL 7 /DUNXQ (PRUV RZQ &RUWLFDO &LUFXLW IRU $FFXUDWH 3HUFHSWLRQ 1HXURQ ±

/LPD 0)9 0HQHJD.DWD<X e HW VHQVRU\ GHILFLWV LQ LSVLOHVLRQDO XSS H[WUHPLW\ LQ FKURQLF VWURNH 1HXURSKLOSVLTXLDWU -

&DLDR 2UVLQL)HOLFLR 0XVFXODU ZHDNQHVV UHSUHVHQWV WKH P OLPLWLQJ IDFWRU RI ZDON IXQFWLRQDO LQGHSHQGHQFH DQG TXDOLW SDWLHQWV DVVRFLDWHG $UT 1HXURSVLTXLDWU -

0DULN 7/ 5RFKH (IIHFWLYHQHVV RI 2FFXSDWLRQDO 7KHUDS\ ,QWHUYHQW FXORVNHOHWDO 6KRXOGHU &RQGLWLRQV $ 6\VWHPDWLF 5HYLHZ 2FFX SDWLRQDO 7KHUDS\ -

,PPV & :DOOHQ 0 (OOLRWW & DW DPSOLWXGH SDLU PHQW 3URWRFRO IRU D PXOWLFHQWUH UDQGRPLVHG FRQWUROOHG WULDO RI XSSHU OLPE RU FHUHEUDO SDOV\ 3HGLDWU

$OPKGDZL .$ 0DWKLRZHW] 9* :KLWH 0 'H 2FFXSDWLRQDO 7KHUDS\ 7DVN2ULHQWHG $SSURDFK LQ 8SSHU-([WUHPLW\ 5HKDELOLWDWLRQ 2FFXS 7KHU ,QW -

.XQLDNL 1DJDL 275)XPLDNL <DPDGD 'LVDELOLW\ 2FFXSDWLRQDO LQGHSHQGHQ PHDVXUH IDFLOLWDWHV UHWXUQ WR KRPH-DSDQ HQJOLVK DEVWUDFW UHSRUW 3K\V 7KHU 6FL ±

6KLQ &* 7HUDSLD 2FFXSDFLRQDO H DFLGHQWH YDVFXODU FHUHE LQWHJUDWLYD GD DWLYLGDGH 7HU 2FXS -

0H\HU 0- 3HUHLUD 6 0F&OXUH 6 $ FRPSUHKHQVLYH UHYLHZ RI VWXGLHV UHSRU PXOWLYDULDEOH PRGHOV WR SUHGLFW IXQFWLRQDO RXWFRPH UHKDELOLWDWLRQ 'LVDELO 5HKDELO -

)RPHQWR 3UR-5HLWRULD GH 3HVTXLVD H 3yV-*UDGXDomR 3523(63 GD 8QLYHUVLGDGH GR 3DUi 8)3$ %ROVD 3,%,& H -RQDWKDV %RXOWRQ -%RXOWRQ 3Uy

&RQWULEXLomR GRV DXWRUHV 7RGRV RV DXWRUHV H DXWRUDV SDUWLFLSDUDP GDV HWDSDV GD SHVTXLVD

$UWLJR UHFHELGR HP

$UWLJR DSURYDGR HP

$UWLJR SXEOLFDGR HP